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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,674	06/06/2005	Chris Wyland	US02 0511 US	5157

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EXAMINER	
RODELA, EDUARDO A	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/537,674	WYLAND, CHRIS	
	Examiner	Art Unit	
	Eduardo A. Rodela	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Minhloan Tran
Primary Examiner
Art Unit 2826

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/6/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 contains the trademark/trade name TEFLON. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson,* 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a molding compound and, accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Notani et al. (US 5,349,317).

Regarding claim 18, Notani et al. disclose a method for controlling impedance of bond wires in packaging a semiconductor device die in a package, the method comprising:

defining locations of signal and power/ground pads on the device die [Fig. 3: 3 and 18 of 2a];

selecting a suitable package having a ground for the device die [Fig 3: package 1 with ground area 19];

bonding a ground strap to the device die ground pads and the package ground, coupling the device die ground pads to the package ground [Fig 3: 9 couples 19 to 18 of 2a];

bonding signal pads, in the vicinity of the ground strap, of the device die to package landings [Fig. 3: 8 of 2a connects to 6 of 1];

bonding remaining signal, power and ground pads of the device die to package landings; and sealing the package [Fig. 3: 8 and 9 on the opposite side of 2a connect to the pads of 2b]. It is noted that the recitation that a method for controlling impedance of bond wires in packaging a semiconductor device in a **ball grid array package**, has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie, 88 USPQ 478 (CCPA 1951).*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 3, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. (US 6,570,249) in view of Jacobs et al. (US 4,811,082).

Regarding claim 1, Liao et al. disclose an integrated circuit device comprising:

an integrated circuit having a plurality of grounding pads [Figs. 3A & 3B: semiconductor chip 20], signal pads [Figs. 3A & 3B: bond pads 21 shown later in Fig 4B connected to signal fingers 11, therefore carry a signal], and power pads [Figs. 3A & 3B: bond pads 21 shown later in Fig 4B connected to power ring 12, therefore power lines]; and a package for mounting the integrated circuit [Figs. 3A & 3B: semiconductor chip 20 mounted on substrate 10]; wherein the package comprises, a grounding ring surrounding the integrated circuit [Fig. 3B & 4B: substrate 10 has a ground ring 13 that surrounds the semiconductor chip 20]; and bonding wires coupling the grounding ring to the corresponding grounding pads of the semiconductor chip. Liao et al. does not disclose a mounting strap coupling the grounding ring to the grounding pads of the integrated circuit. Jacobs et al. does disclose a mounting strap coupling an electrical component located above and disposed on another electrical component [Fig. 1: 9 disposed on 8 are electrically connected by decal 29, column 13: 7-30 shows that the decal carries a ground line, "Thin film wiring is typically embedded in the dielectric, the wiring basically comprises signal wiring 35 and ground lines 41..."]. It would have been

obvious to one of ordinary skill in the art at the time the invention was made to use a signal tape connecting the ground pads of the chip to the grounding area of the substrate. The ordinary artisan would have been motivated to use the signal tape in order to minimize the use of bonding wires, which are extremely fragile and prone to breakage during manufacture and specifically during the application of the protective molding.

Regarding claim 2, Liao et al. and Jacobs et al. disclose the system of claim 1. In addition, Liao et al. further discloses that the package further comprises a plurality of pad landings [Figs. 3B & 4B: substrate 10 has a plurality of signal fingers 11].

Regarding claim 3, Liao et al. and Jacobs et al. disclose the system of claim 2. In addition, Liao et al. discloses wherein the signal pads of the integrated circuit are coupled to the pad landings with bond wires [Fig. 4B: several bonding pads 21 connect to the signal fingers 11 by bond wires 30].

Regarding claims 10 and 13, Liao et al. and Jacobs et al. disclose the integrated circuit device of claims 1 and 2. In addition, Jacobs et al. disclose the grounding strap further comprises, a first conducting material providing a first conductor and having a first length and a first cross-section, the first conductor having a top surface and a bottom surface [Fig. 1: 29, 31 with lines 35, column 13: lines 6-21, "...thin film lines 35 in decal 29,31 interconnections. The decals 29, 31 are made of a low dielectric flexible material..." so thin film lines are the first conducting material which have a length and would have a first cross section, and a top and bottom surface since it is a flat tape bonding connection].

Regarding claims 11 and 14, Liao et al. and Jacobs et al. disclose the integrated circuit device of claims 10 and 13. In addition, Jacobs et al. does disclose that the conductive strap further comprises, a dielectric material having a second cross-section and a second length, the second cross-section being about equal to the first cross-section of the first conductor, the second length shorter than the first length, the dielectric material being attached to the first conductor at about the midpoint of the first length, leaving a first gap and a second gap of the first conductor exposed [Fig. 1, magnified below: shows the electrical conductor 35 with a length longer than the dielectric portion below it, labeled by the examiner as B, with a gap for the via connects A and C to externally connect line 35].

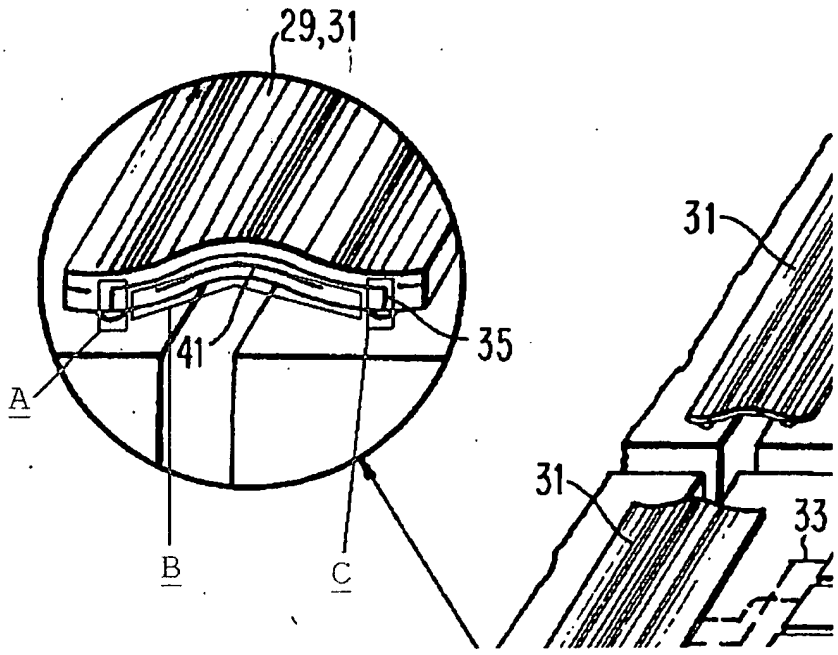

Figure 1, Jacobs, magnified to show the tape structure.

Regarding claims 12 and 15, Liao et al. and Jacobs et al. disclose the integrated circuit device of claims 11 and 14. In addition, Jacobs et al. disclose the grounding

strap further comprises, a second conducting material applied to the first conductor at the first gap and the second gap, the second conducting material applied so that the second conducting material is substantially flush with the dielectric material; and wherein the mounting strap is formed in a manner so that the first gap couples one components bonding area to another components bonding area, which includes providing a ground connection (the ground pad of the integrated circuit being connected with the ground ring of the substrate, already having been rejected in claim 1) [Fig. 1, magnified below: shows the electrical conductor 35 with a length longer than the dielectric portion below it, labeled by the examiner as B, with a gap for the via connects A and C to externally connect line 35, column 13: lines 6-21, "...thin film lines 35 in decal 29,31 interconnections. The decals 29, 31 are made of a low dielectric flexible material..."].

Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. (US 6,570,249) and Jacobs et al. (US 4,811,082) in view of Cloud et al. (US 5,815,427).

Regarding claims 4 and 17, Liao et al. and Jacobs et al. disclose the system of claims 1 and 3. Liao et al. and Jacobs et al. do not disclose wherein the bond wires are in close proximity to, but not touching, the grounding strap. Cloud et al disclose wherein the bond wires are in close proximity to, but not touching, the connecting conductive strap [Fig. 1: module 18 with pad 28, having wire 34 connected to it, and beside pads 28 that provide a bonding area for tape 32 with conductors 30 therein]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a

signal tape in conjunction with bonding wires. The ordinary artisan would have been motivated to do so in order to provide the utmost in flexibility in wiring / connection options, but at the same time minimize the use of the highly fragile bonding wires.

Claims 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. (US 6,570,249) and Jacobs et al. (US 4,811,082) in view of Notani et al. (US 5,349,317).

Regarding claim 5, 6, 8, and 9, Liao et al. and Jacobs et al. disclose the system of claim 1. Liao et al. and Jacobs et al. do not disclose wherein the grounding strap comprises copper conductors. Notani et al. does disclose a conductive strip tape comprises copper conductors [column 4: lines 15-25 shows that conductive lines are either copper, gold, or aluminum]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use copper, gold or aluminum as the conductor in the conductive element. The ordinary artisan would have been motivated to do so in order to utilize an industry standard metal known for its high performance characteristics.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. and Jacobs et al. in view of Grellman et al. (US 4,600,907).

Regarding claim 7, Liao et al. and Notani et al. disclose the system of claim 1. Liao et al. and Notani et al. do not disclose wherein the grounding strap comprises silver conductors. Grellman et al. disclose the grounding strap comprises silver conductors [column 4: lines 48-51]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use silver conductors. The ordinary artisan would

have been motivated to use silver conductors since silver is well known in the art to be a high quality conductor with one of the highest conductivities of metals and its ability to withstand corrosion and oxidation.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al., Jacobs et al., and Cloud et al. in view of Notani et al. (US 5,349,317).

Regarding claim 16, Liao et al., Jacobs et al., and Cloud et al. disclose the integrated circuit device of claim 4. Only Jacobs et al. disclose wherein the dielectric material is polyimide [column 13: lines 14-17, "The decals are made of a low dielectric flexible material (i.e. preferably polyimide)..."]. Notani et al. does disclose wherein the dielectric material is TEFLON (polytetrafluoroethylene PTFE) [column 4: lines 9-15]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use polytetrafluoroethylene PTFE (trade name, TEFLON). The ordinary artisan would have been motivated to use PTFE in order to provide the well-known anti-friction physical characteristics, which would greatly aid in the application of the tape conductor.

Fax / Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo A. Rodela whose telephone number is (571) 272-8797. The examiner can normally be reached on M-F, 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eduardo A. Rodela
Examiner